

→ 39081 (A.J)

→ Batch: 077

General Science & Ability

30-07-2015

Section - I

Question 1

(a) Potential Benefits of AI in Healthcare:-

AI is useful in every field of life and with time its efficacy is also improving. In health care system AI can be used as under:

- (i) To manage records and files of the patients.
- (ii) To help or assist in reading radiographs.
- (iii) It can also be used in monitoring and tracking critical patients.
- (iv) AI can be used in sorting data to help in statistics of diseases and disease load.
- (v) To tell recent trends in diseases.

2. Challenges of implementing AI in health care:

Along with ^{benefits} ~~challenges~~ there are numerous challenges of AI especially in health care setup which can't be ignored. Few of them are mentioned as under:

- (i) Risk of breaching privacy of medical record.
- (ii) Risk of life is involved if AI is over relied on.
- (iii) AI still can't diagnose a disease accurately, so it can't be used for diagnosis purposes.

Impact of AI on patient care and medical diagnosis:

The impact of AI is increasing day by day but in the field of health care it can not be used with caution.

AI can help in diagnosis by commenting on radiological finding or histological pictures in the lab, but it can't make final diagnosis, so help of AI can be taken but not blindly.

In the domain of patient care AI is being used in monitors tracking "vitals" of the patients, it's used in tracking and assessing cardiac health, blood pressure and oxygen saturation...

To sum up, AI is really helpful in every field of life but where human health and life is concerned it should be used with extra care.

Impact of AI on patient care and medical diagnosis:

The impact of AI is increasing day by day but in the field of health care it can not be used with caution.

AI can help in diagnosis by commenting on radiological finding or histological pictures in the lab, but it can't make final diagnosis, so help of AI can be taken but not blindly.

In the domain of patient care AI is being used in monitors tracking "vitals" of the patients, it's used in tracking and assessing cardiac health, blood pressure and oxygen saturation...

To sum up, AI is really helpful in every field of life but where human health and life is concerned it should be used with extra care -

(b)

Big Bang Theory

And its significance.

Big Bang theory talks about the origin and evolution of universe. It is the most widely accepted theory regarding origin of universe.

According to Big Bang Theory the universe came into existence with a massive explosion (big bang), prior to that there was just singularity, The whole energy of the universe was locked inside a pin head size dot and with its explosion massive amount of energy got ~~sent~~ released and universe came into being and started expanding, which is still expanding.

Big bang dates back to 13.7 billion years ago.

Key Evidences supporting Big Bang Theory:

(1) Red Shift :-

when light comes from a body which is going away from us, its frequency decreases and wavelength increases, a phenomenon known as RED SHIFT. Light rays coming from distant stars and galaxies also exhibit red shift, proving that universe is expanding hence proving Big Bang Theory.

(ii) Cosmic background microwave radiations:-

These radiations were discovered by A. Penzias and Wilson while studying radio waves. These radiations are expanded throughout the universe and thought to be heat left over of original big bang.

(C)

Global Warming

The perpetual rise in temperature of the globe due to harmful human activities is called as global warming.

Causes:

- (i) Increase consumption of ^{Non} Renewable energy.
- (ii) Deforestation ($\downarrow$ concentration of oxygen)
- (iii) Massive Urbanization (increasing CO_2 and other pollutants)
- (iv) Green House gases (i.e. CO_2 , CH_4 , CFC, etc)
- (v) Damage to ozone layer caused by human practices.

Effects :-

- (i) Rapid melting of glaciers.
- (ii) Rise in sea level: potential threats to coastal lands
- (iii) Increase frequency of floods.
- (iv) Food insecurity.
- (v) Economic inequality as certain class hurts more than the other.
- (vi) climate injustice.

Role of Human Activities:

- (i) Rapid deforestation
- (ii) Use of Non-renewable energy sources.
- (iii) Uneven and unplanned urbanization.
- (iv) Use of Ozone damaging products such as CFCs.
- (v) Increasing pollution from industrial wastes.

potential strategies:-

- (i) more reliance on renewable energy.
- (ii) Massive tree plantation.
- (iii) Purifying industrial waste before releasing it in the open.
- (iv) Strict implementation on UN climate conventions.
- (v) Financial assistance to developing countries.
- (vi) control of population explosion.

2 (d)

Disaster management

Disaster = Hazard + vulnerability
capacity

Disaster Management system & its key components:

Disaster management system consists of management of resources plus dealing with all humanitarian emergencies -

There are four (04) Key components

- 1) prevention
- 2) preparedness
- 3) Response
- 4) Recovery.

Importance of Key Components:

i) prevention / mitigation:

It eliminates or reduces probability of a disaster. And if the disaster is unavoidable this key component decreases the effects of that disaster and reduce casualties and damages.

(ii) preparedness :

It is done by government, organizations and also by individuals. It is done through the following ways :

- ① warning systems
- ② evacuation plans
- ③ public awareness
- ④ Emergency help lines -
- ⑤ Necessary drills -

(iii) Response :

It is the emergency response to provide immediate assistance to life. It increases health and decreases mortality.

It is range from limited refuge assistance with food & shelter to semi-permanent settlements in camps.

(iv) Recovery :

when the emergency is brought under control, this activity is ^{aimed at} restored ~~at~~ ~~for~~ the lines.

Immediate relief → Recovery → long-term sustainability

$\Rightarrow 39081(AJ)$

$\Rightarrow$ Batch: 077

General Science & Ability

30-07-2025.

Section - II

Q: 5

(a)

20% of students = Below 8 years.

Exactly 8 years = 48.

Above 8 years = $\frac{2}{3}$ of 48.

Total No. of students = ??

Solution:

$$\text{Above 8 years} = 48 \times \frac{2}{3}$$

$$= 16 \times 2$$

$$\boxed{\text{Above 8 years} = 32}$$

$$\text{Total} = 48 + 32 + 20$$

$$\boxed{\text{Total No. of students} = 100 \text{ students}}$$

($\because$ 20% of students are < 8 years
20% of 100 = 20.)

(C)

Two dice rolled.

Probability that total score is a prime no: ??

Solution:-

probabilities when two dice are rolled = 2 to 12
 $\hookrightarrow$ Total probabilities = 11

Prime no: b/w 2 to 12 = 2, 3, 5, 7, 11

Total prime no: = 5.

$$\boxed{\text{Probability} = \frac{11}{5}}$$

(b)

$$\text{Father} = \text{Rashid} \times 3$$

$$\text{After 8 years: } F = R \times 2.5$$

$$\text{After 8 more years: } F = \text{how many times of Rashid} = x \times R = ??$$

Solution

Suppose; Rashid's Age = x

$$\text{Father's age} = x + 3x = 4x$$

After 8 years:

$$\text{Rashid} = x + 8$$

$$\text{Father} = 4x + 8$$

and at this time Father's age = 2.5 times of Rashid

So,

$$4x + 8 = 2.5(x + 8)$$

$$4x + 8 = \frac{5}{2}(x + 8)$$

$$2(4x + 8) = 5(x + 8)$$

$$8x + 16 = 5x + 40$$

$$8x - 5x = 40 - 16$$

$$3x = 24$$

$$x = 24/3$$

$$\boxed{x = 8}$$

Rashid's current Age = 08

Father current age = 32

After 8 years: Rashid = 16 (2.5 times of Rashid)
Father = 40

After further 8 years :

$$\text{Rashid} = 24$$

$$\text{Father} = 48$$

So, After final 8 years father would be twice of Rashid's age (48 : 24)

(d)

$$\text{Avg} = x$$

$$\text{Total Members} = 11$$

$$\text{Total Age} = 11x$$

$$\text{Avg of 9 player} = x - 1$$

$$\text{Total age of 9 players} = 9(x - 1)$$

$$\text{Age of captain} = 26$$

$$\text{Age of WK} = 29$$

find avg. of whole team ??

Solution

$$11x = 9(x - 1) + 26 + 29$$

$$11x = 9x - 9 + 55$$

$$11x - 9x = 55 - 9$$

$$2x = 46$$

$$\boxed{x = 23}$$

Average age of the whole team = 23

Average age of 9 member team = 22.

Solved

Q:06

(a)

Selling price = doubled

profit = tripled

profit percent = ??

Solution

profit = selling price - cost

$$P = Sp - C$$

if selling price is doubled

$$\text{New profit} = 2Sp - C$$

Now the new profit is triple (3 times).

$$2Sp - C = 3(Sp - C)$$

$$2Sp - C = 3Sp - 3C$$

$$-C + 3C = 3Sp - 2Sp$$

$$\boxed{2C = Sp}$$

Profit % : original ~~price~~ selling price = $Sp = 2C$

$$\text{original profit} = Sp - C = 2C - C = C$$

$$\text{profit \%} = \frac{\text{Profit}}{\text{cost price}} \times 100$$

$$= \frac{C}{C} \times 100$$

$$\boxed{\text{Profit percent} = 100\%}$$

6 (b)

$$X + Y = 550 \text{ /week}$$

$$X = 120\% \text{ of } Y$$

$$\text{pay of } Y = ??$$

If; X and Y are paid equal ~~is~~ $= \frac{550}{2} = 275$ each.

But X and Y are not paid equal.

$$X = 120\%$$

Y = remaining amount.

$$\text{Amount of } X = 120\% \text{ of } Y$$

$$\text{Total amount} = 550$$

$$\text{Amount of } X = 300$$

$$\boxed{\text{Amount of } Y = 250}$$

Hence X is getting 120% of Y .

6 (c)

Perimeter to Breadth ratio = 5:1

Area of rectangle = 216 cm^2

Length = ??

Solution

Let Breadth = $x \text{ cm}$

Perimeter = $5x \text{ cm}$

$$\text{Perimeter} = 2(\text{Length} + \text{Breadth}) = 2(L + x)$$

$$5x = 2L + 2x$$

$\div$ both sides by 2

$$\frac{5x}{2} = \frac{2L + 2x}{2}$$

$$\frac{5x}{2} = L + x$$

$$L = \frac{5x}{2} - x = \frac{5x - 2x}{2} = \frac{3x}{2}$$

$$\boxed{\text{Length} = \frac{3x}{2}}$$

$$\boxed{\text{Breadth} = x}$$

$$\text{Area} = \text{length} \times \text{breadth} = \frac{3x}{2} \times x$$

$$216 = \frac{3x^2}{2}$$

$$432 = 3x^2$$

$$x^2 = 432/3 = 144$$

$$\boxed{x = 12}$$

$$\text{length} = \frac{3x}{2} = \frac{3 \times 12}{2} = \boxed{18 \text{ cm}}$$

$$\boxed{\text{Length} = 18 \text{ cm}}$$

6(d)

Total tickets = 20

~~make~~

multiple of 3 = 3, 6, 9, 12, 15, 18 = 6

multiple of 5 = 5, 10, 15, 20 = 4

common multiple = 15 (we would not double count it)

Total multiples of 3 and 5 = ~~10~~ 09

probability of multiple of 3 or 5 = $\frac{9}{20}$

probability = 45%

Aus